



Environmental Risk Assessment  
Techniques Used at U.S. DOE Sites

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Assistance (HS-22)

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Overview

- **DOE Standard**- A Graded Approach for Evaluating Radiation Doses to aquatic and Terrestrial Biota DOE-STD-1153-2002
- **RESRAD BIOTA**: A Tool for Implementing a Graded Approach to Biota Dose Evaluation
- **Case Study**: INEEL 2002



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DOE Order 458.1 Biota Protection Requirements

- Protect populations of aquatic and terrestrial animals and terrestrial plants
  - Use DOE-STD-1153-2002, or
  - Use alternative approach to demonstrate dose rate criteria are not exceeded, or
  - Use ecological risk assessment to demonstrate no adverse affect on populations in ecosystem.



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## DOE Dose Rate Criteria

- Terrestrial animals: 1mGy/day
- Terrestrial plants: 10mGy/day
- Aquatic animals: 10mGy/day



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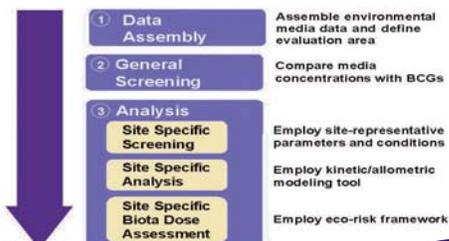
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## Overview of DOE's Graded Approach



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## RESRAD Biota

- Computer model by Argonne National Lab for implementing screening and analysis methods contained in DOE Standard 1153
- Estimate radiation dose from RESidual RADioactive material (RESRAD) biota code
- Used to assess compliance with DOE criteria which are consistent with national and internationally recommended dose guidelines for biota
- Conduct ecological assessments of radiological impact



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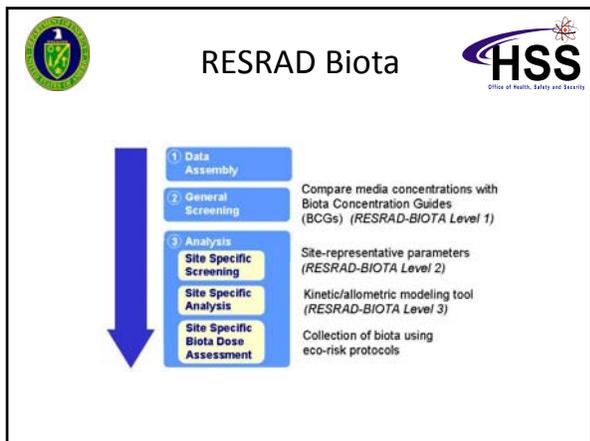
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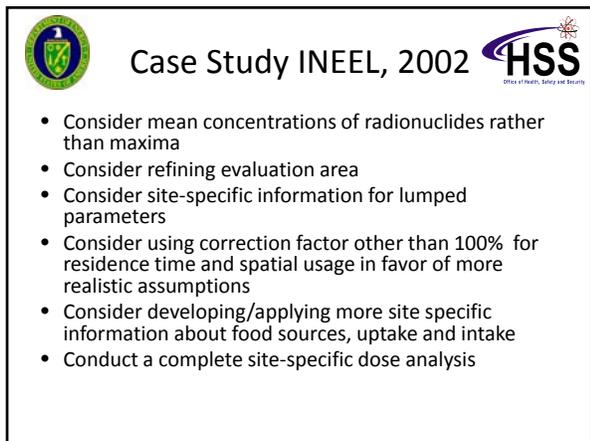
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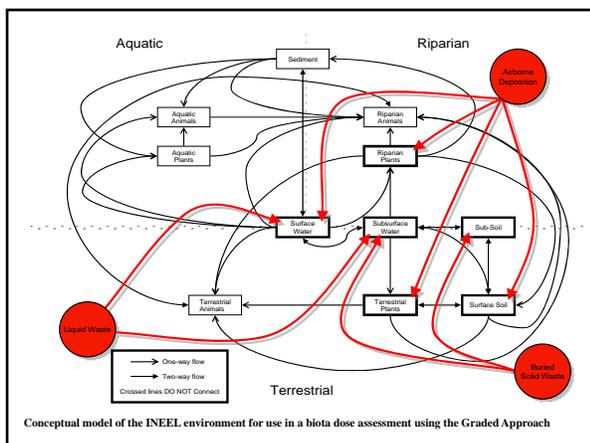
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